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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/890,330   | 07/30/2001  | Akira Fukunaga       | FUKUNAGA=5          | 9513             |
| 1444   | 7590        | 10/07/2003           | EXAMINER            |                  |
| BROWDY AND NEIMARK, P.L.L.C.<br>624 NINTH STREET, NW<br>SUITE 300<br>WASHINGTON, DC 20001-5303 |             |                      | LEE, CALVIN         |                  |
|  |             | ART UNIT             | PAPER NUMBER        |                  |
|  |             | 2825                 |                     |                  |

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                 |
|------------------------------|-----------------|-----------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)    |
|                              | 09/890,330      | FUKUNAGA ET AL. |
|                              | Examiner        | Art Unit        |
|                              | Lee Calvin      | 2825            |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11 September 2003.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
  - 4a) Of the above claim(s) 9-15 is/are withdrawn from consideration.
- 5) Claim(s) 3-6 is/are allowed.
- 6) Claim(s) 1,2,7 and 8 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 July 2001 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ .                                   |

## OFFICE ACTION

### *Response to Elections*

1. Applicant's election without traverse of claim 1-8, dated 9/11/03 is acknowledged.

### *Claim Objection*

2. Claim 1 is objected to because of the following informality:

In claim 1, line 12, replace "and bond metal" with --and to bond metal particles--

### *Claim Rejections - 35 U.S.C. § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by *Horie et al* (US 6,517,642).

*Horie et al* discloses a method of forming a thin metal film, comprising:

- preparing a dispersed liquid having a metal-containing organic compound/powder [col. 3, ln.47] dispersed in a predetermined solvent [col. 4, ln.38],
- coating said dispersed liquid on a surface of a substrate [Fig. 3 and col. 4, ln.54]
- evaporating the solvent to form a coating layer [col. 5, ln.35]
- applying an energy beam (i.e., laser beam) [col. 5, ln.59] in air [col. 9, ln.65] to said coating layer to decompose away an organic substance contained in said coating layer in an area irradiated with the energy beam and to bond metal particles contained in said coating layer

In re claim 8, *Horie et al* even discloses a semiconductor device having interconnects formed by the method of forming a thin metal film [col. 1].

### *Allowable Subject Matter*

5. Claims 3-6 are allowed because *Horie et al* fails to disclose dissolving away the metal-containing organic compound left on the surface of the substrate with a solvent.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: *Watanabe et al* (US 5,966,580) discloses a process for making a thin metal film using ultrafine metal particles dispersed in an organic solvent then coating, drying and sintering it on a substrate's surface [col. 5]; *Ando et al* (US 5,993,701) discloses a method for decomposing a metal salt of organic acid, a metal oxide (or nitrate), vapor-phase chemical deposition methods such as by an electric furnace method which is disclosed in "Particulates Handbook (Fuji Techno System)" a chemical furnace method, a plasma method, a laser method, and a high voltage pulse discharge method, vapor-phase physical deposition methods such as by a sputter deposition method, a vacuum evaporation method, a resistance heating method, a high frequency induction method, a plasma method, an electron beam heating method, and a laser beam heating method [col. 5]; and *Nagasawa et al* (US 6,358,611) discloses a process for producing particles comprising an organometallic core.

7. Any inquiry concerning this communication from the examiner should be directed to *Calvin Lee* at (703) 306-5854 from 7:00 to 17:00 (Mo-Th). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor *Matthew Smith* can be reached at (703) 308-1323.

Any inquiry relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1782. The fax phones are (703) 872-9318 for regular communications and (703) 872-9319 for After-Final communications.

*C. Everhart*  
CARIDAD EVERHART  
PRIMARY EXAMINER

CL  
September 24, 2003